



PATENT ABSTRACTS OF JAPAN

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H01L 29/786**H01L 21/336****H01L 21/268****H01L 27/12**(21) Application number: **07291790**(71) Applicant: **SONY CORP**(22) Date of filing: **13 . 10 . 95**(72) Inventor: **SHIMOGAICHI YASUSHI****(54) MANUFACTURE OF THIN FILM SEMICONDUCTOR DEVICE****(57) Abstract:**

PROBLEM TO BE SOLVED: To efficiently repair the defects of a semiconductor film and a gate insulating film caused by laser annealing.

SOLUTION: To manufacture a film semiconductor device, preprocessing is performed first, and a treatment including the film growth is executed at need on an insulating substrate 1. Next, film growth processing is performed to form a noncrystalline semiconductor film 4 on the insulating substrate 1. Subsequently, crystallization processing is performed, and a laser beam 5 is applied to crystallize the semiconductor film 4, thus it is made into the active layer of a film transistor. In after processing, processing including film growth is performed onto the semiconductor film 4 to complete the film transistor. At this time, restoration processing performed before advancing into the after processing after the crystallization process, whereby the defects of the film transistor caused by the application of laser beam is repaired. For example, the insulating substrate 1 is exposed in hydrogen plasma 6 to terminate the defects of the semiconductor film 4 and

the gate insulating film 3 in hydrogen.

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